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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/767,452	01/23/2001	Klaus Schafer	30563/181659	2118

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EXAMINER	
DEL SOLE, JOSEPH S	
ART UNIT	**PAPER NUMBER**
1722	8

DATE MAILED: 05/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/767,452	SCHAFER ET AL.	
	Examiner	Art Unit	
	Joseph S. Del Sole	1722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 May 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16 and 21-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *23 and 24* is/are allowed.

6)☒ Claim(s) *1-5 and 13-16* is/are rejected.

7)☒ Claim(s) *6-12* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 May 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Drawings

1. The corrected or substitute drawings were received on 5/19/03. These drawings are acceptable.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-5 and 21-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Schippers (3,999,909).

Schippers teaches a melt spinning apparatus having an extruder (Fig 1) for heating a polymeric material and extruding the resulting melt through a spinneret nozzle (Fig 1, #2) to form a plurality of downwardly advancing filaments; a cooling tube (Fig 1, #10) disposed below the spinneret nozzle for receiving the advancing filaments and having an inlet, a cylindrical portion below the inlet, and an outlet (Fig 1, #10); a gas permeable inlet cylinder (Fig 1, #4) positioned between the spinneret nozzle and the inlet of the cooling tube; a suction generating device (Fig 1, #11) connected adjacent the outlet of the cooling tube so as to generate an initial cooling air stream through the cooling tube in the direction of the advancing filaments (Fig 3); an air supply device (Fig 1, #24) for generating an additional cooling air stream in the cooling tube in the axial direction, with the air supply device being positioned downstream of the inlet of the

cooling tube; guide means (Fig 1, #18) for gathering the advancing filaments to form an advancing multifilament yarn; a winder (Fig 1, #3) for winding the advancing multifilament yarn into a package; the air supply device is connected to the cooling tube such that the initial cooling air stream and the additional cooling air stream flow together in the direction of the advancing filament (Fig 1 and Fig 3); the air supply device comprises at least one opening in the cooling tube between the inlet and the outlet (Fig 1), and wherein ambient air is caused to enter the cooling tube through the at least one opening by the suction generating device so as to form the additional cooling air stream (Fig 1, the structure of the apparatus of Fig 1 is such that ambient air will be sucked in through opening #24 when valve #12 is open and opening #24 is left open to the surrounding atmosphere); the air supply device has at least one opening in the cooling tube between the inlet and the outlet, and an air stream generator connected to the at least one opening, and wherein air is caused to positively enter the cooling tube through the at least one opening by the air stream generator so as to form the additional cooling air stream (col 5, lines 3-6); the air stream generator has an injector which has a nozzle bore and a source of compressed air connected to the nozzle bore (Fig 1, #24 and col 5, lines 3-6), with the nozzle bore of the injector communicating with the at least one opening, and wherein the cooling tube defines a center axis, and wherein the nozzle bore is inclined with respect to the center axis at an angle less than 90° so that the additional cooling air enters the cooling tube in a direction having a component in the direction of the advancing filaments; and the suction generating device draws air from a

continuous opening extending from the gas permeable inlet cylinder (which has a perforated wall at two opposite sides) and through the cooling tube.

The limitation "so that the additional cooling air stream contacts the downwardly advancing filaments only shortly before or after solidification of the filaments within the cooling tube and so that the additionally cooling air supply is withdrawn from the cooling tube by the suction generating device" is merely a process limitation, depending on the conditions of operation and the materials used, and does not provide structure to limit the apparatus.

4. Claims 1-5 and 21-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Mears (EP0682720B1) or Mears (WO95/15409).

Mears (either reference) teaches a melt spinning apparatus having an extruder (Fig 3) for heating a polymeric material and extruding the resulting melt through a spinneret nozzle (Fig 1, #25) to form a plurality of downwardly advancing filaments; a cooling tube (Fig 3, #s 35 and 59 together) disposed below the spinneret nozzle for receiving the advancing filaments and having an inlet, a cylindrical portion below the inlet, and an outlet; a gas permeable inlet cylinder (Fig 3, #65) positioned between the spinneret nozzle and the inlet of the cooling tube; a suction generating device (Fig 3, #37) connected adjacent the outlet of the cooling tube so as to generate an initial cooling air stream through the cooling tube in the direction of the advancing filaments (Fig 3); an air supply device (Fig 1, #39 and #60) for generating an additional cooling air stream in the axial direction of the cooling tube, with the air supply device being positioned downstream of the inlet of the cooling tube; guide means (Fig 1, #33, the

filaments are gathered in the cooling tube, such bringing together is aided by #33) for gathering the advancing filaments to form an advancing multifilament yarn; a winder (Fig 3, #28) for winding the advancing multifilament yarn into a package; the air supply device is connected to the cooling tube such that the initial cooling air stream and the additional cooling air stream flow together in the direction of the advancing filament (Fig 3); the air supply device comprises at least one opening in the cooling tube between the inlet and the outlet (Fig 1), and wherein ambient air is caused to enter the cooling tube through the at least one opening (Fig 3, the portion represented by #39) by the suction generating device so as to form the additional cooling air stream); the air supply device has at least one opening in the cooling tube between the inlet and the outlet, and an air stream generator connected to the at least one opening, and wherein air is caused to positively enter the cooling tube through the at least one opening by the air stream generator so as to form the additional cooling air stream (Fig 3, #60); the air stream generator has an injector which has a nozzle bore and a source of compressed air connected to the nozzle bore, with the nozzle bore of the injector communicating with the at least one opening, and wherein the cooling tube defines a center axis, and wherein the nozzle bore is inclined with respect to the center axis at an angle less than 90° so that the additional cooling air enters the cooling tube in a direction having a component in the direction of the advancing filaments; and the suction generating device draws air from a continuous opening extending from the gas permeable inlet cylinder (which has a perforated wall at two opposite sides) and through the cooling tube.

The limitation "so that the additional cooling air stream contacts the downwardly advancing filaments only shortly before or after solidification of the filaments within the cooling tube and so that the additionally cooling air supply is withdrawn from the cooling tube by the suction generating device" is merely a process limitation, depending on the conditions of operation and the materials used, and does not provide structure to limit the apparatus.

5. Claims 1, 13-16 and 21-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Peckinpaugh et al (4,204,828).

Peckinpaugh et al teach a melt spinning apparatus having an extruder (Fig 1) for heating a polymeric material and extruding the resulting melt through a spinneret nozzle (Fig 1, #5) to form a plurality of downwardly advancing filaments; a cooling tube (Fig 1, the middle portion of #6) disposed below the spinneret nozzle for receiving the advancing filaments and having an inlet, a cylindrical portion below the inlet, and an outlet; a gas permeable inlet cylinder (Fig 1, the top of #6) positioned between the spinneret nozzle and the inlet of the cooling tube; a suction generating device (Fig 1, #17) connected adjacent the outlet of the cooling tube so as to generate an initial cooling air stream through the cooling tube in the direction of the advancing filaments (Fig 1); an air supply device (Fig 1, the bottom portion of #6 through which the lower arrows #25 are drawn) for generating an additional cooling air stream in the axial direction of the cooling tube, with the air supply device being positioned downstream of the inlet of the cooling tube; guide means (Fig 1, #18) for gathering the advancing filaments to form an advancing multifilament yarn; a winder (Fig 1, #21) for winding the

advancing multifilament yarn into a package; the air supply device is connected adjacent the outlet of the cooling tube and so as to be positioned below the suction generating device such that the additional cooling air stream flows opposite to the direction of the advancing filaments (Fig 1); the air supply device is a second cooling tube (Fig 1, the bottom portion of #6 is a different tube relative to its middle portion due to the separation effect of #17) through which the filaments advance, and wherein the second cooling tube is axially connected to the first mentioned cooling tube adjacent the outlet thereof and such that the additional cooling air stream is generated by the suction generating device (Fig 1); the second cooling tube has an inlet and a cylindrical outlet, and wherein the air supply device has at least one opening in the cylindrical outlet of the second cooling tube (the cylindrical outlet is the at least one opening); the second cooling tube includes an inlet and wherein the outlet of the first mentioned cooling tube and the inlet of the second cooling tube are interconnected by an outlet chamber (Fig 1, #17), with the suction generating device being connected to the outlet chamber; and the suction generating device draws air from a continuous opening extending from the gas permeable inlet cylinder (which has a perforated wall at two opposite sides) and through the cooling tube.

The limitation "so that the additional cooling air stream contacts the downwardly advancing filaments only shortly before or after solidification of the filaments within the cooling tube and so that the additionally cooling air supply is withdrawn from the cooling tube by the suction generating device" is merely a process limitation, depending on the

conditions of operation and the materials used, and does not provide structure to limit the apparatus.

Response to Arguments

6. Applicant's arguments filed 5/19/03 have been fully considered but they are not persuasive.

The rejections drawn to primary references Katou et al, Geus et al and Gehrig et al have been overcome.

The Applicant argues that in Schippers the air entering through the injector tubes is directed away from the vacuum device and the vacuum device is inoperative when the injector tubes are operative.

The Examiner disagrees that this differentiates the invention as claimed from Schippers. First of all, the Applicant is arguing that the process limitation of claim 1, "so that the additional cooling air supply is withdrawn from the cooling tube by the suction generating device" is not met because air entering through the injector tubes is directed away from the vacuum device which is inoperative when the injector tubes are operative. Since this process limitation does not structurally limit the claim, Schippers still teaches the claimed subject matter. Further, the air supply means may simply be left open to the atmosphere (col 5, lines 3-6) and the vacuum device is operable at any time which in combination enables the above process limitation to be met by the structure taught by Schippers.

The Applicant argues that the position of the air supply means (#60 of Mears) prevents the additional cooling air stream from contacting the filaments only shortly

before or after the solidification of the filaments within the tube because the air supply means are positioned well above the solidification point.

The Examiner disagrees that this differentiates the invention as claimed from Mears. An apparatus cannot be structurally defined by the intended use of the apparatus. Since the solidification of the filaments is not dependent on the structure of the apparatus, but rather the use of the apparatus (the material of the filaments, the temperature at which they are extruded, the temperature of the various cooling fluids and the rate of flow of the cooling fluids and filaments), Mears does teach an apparatus that can cool filaments shortly before or after solidification. Furthermore, the Applicant states that the air jets "are positioned well above the solidification point". Since the limitation in the claim "only shortly before or after solidification" does not define the structural distance, the distance in Mears may very well be "only shortly before".

The Applicant argues that "Peckinpaugh misses the point of the present invention in that there is no teaching or suggestion of using a suction generating air flow in the cooling tube to delay the crystallization of the filaments in the cooling tub."

While this may or may not be true, the Applicant makes no arguments concerning structural differences between the claimed invention and the invention of Peckinpaugh.

Allowable Subject Matter

7. Claims 23 and 24 are allowed.

8. Claims 6-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record fails to teach or suggest the invention as discussed in the previous Office action mailed 2/21/03 and further fail to teach or suggest the air supply device having at least on opening in the cooling tube between the inlet and the outlet having an adjustment device for varying the flow cross section of the at least one opening in combination with the limitations of the parent case. Additionally the prior art of record fails to teach or suggest the air supply device having an annular perforated sheet element which forms the entire circumference of a portion of the cooling tube.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph S. Del Sole whose telephone number is (703) 308-6295. The examiner can normally be reached on Monday through Friday from 8:30 A.M. to 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. Wanda Walker, can be reached at (703) 308-0457. The official fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310 for non-after finals and (703) 872-9311 for after finals.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Joseph S Del Sole
J.S.D.
May 22, 2003

ROBERT DAVIS
PRIMARY EXAMINER
GROUP ~~1300~~ 1722
5/29/03